Mechanical plating can be used to apply zinc, tin or aluminium coatings, either singly or in combination.

It is, essentially, a ‘cold welding’ concept that applies the coating using mechanical energy, at room temperature, without giving any lasting hydrogen embrittlement.

The components to be coated are placed into a tumbling barrel containing glass beads, reagents and catalysts, which activate and prepare the surface. The coating to be applied is added, in metallic powder form and glass beads of varying sizes ‘cold weld’ the coating on to the activated surface of the component.

Similar passivates to electroplating are then applied, prior to drying the parts, lubricants may also be added as part of this process.

Mechanical zinc can be used as an undercoat to enhance the performance of organic paint systems.

<table>
<thead>
<tr>
<th>Salt Spray hrs</th>
<th>White Rust</th>
<th>Red Rust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech clear</td>
<td>24</td>
<td>72</td>
</tr>
<tr>
<td>Mech HW + seal</td>
<td>96</td>
<td>240</td>
</tr>
<tr>
<td>Inverplex</td>
<td>120</td>
<td>240</td>
</tr>
<tr>
<td>Almac yellow</td>
<td>96</td>
<td>480</td>
</tr>
<tr>
<td>Tin Zinc HV + seal</td>
<td>96</td>
<td>500</td>
</tr>
</tbody>
</table>

Advantages-

- No residual hydrogen embrittlement.**
- Uniform coating-galling reduced for threaded components.
- Porous substrates can be coated satisfactorily.
- Ideal for sintered components, which normally require surface preparation to stop ingress of aqueous solutions into pores.
- Cost effective replacement for galvanising, removing problem of thread shaving to be re-rolled, after coating, to remove excess material.
- It is possible to plate some metal components in a pre-assembled state.
- Low environment impact. Virtually no metal residues are discarded.

**NOTE

Mechanically plated parts can suffer from transient embrittlement if used within 6 hours of coating. Please visit our web site and download the PDF on hydrogen embrittlement on Mechanical plating for further information.

It is not possible to coat very large items in this process since they cannot be tumbled.

Mixed Metal Coatings

Mixed Metal Coatings can be supplied with specific advantages such as ductility or high corrosion resistance, especially under certain environments or in contact with other metals. These include Zinc-Tin, Almac® and Inverplex®.

Almac® coatings are combinations of aluminium and zinc which give substantially increased corrosion resistance compared with zinc. They are more ductile than zinc and are very advantageous when used in contact with aluminium.

Inverplex® is a mixed coating of zinc and tin that has better conductivity (and corrosion resistance) than zinc. It may be supplied passivated and is used for earthing screws.

It is important that all alloy coatings are supplied with the correct amount of alloying metal, which can now be tested non-destructively using X-ray fluorescence techniques. The equipment also determines thickness to an accuracy of ±5% which is better than any other means of non-destructive testing. The Anochrome Group has XRF equipment to ensure the quality of its production.

Information presented in this data sheet is considered reliable, but conditions and methods of use, which are beyond our control, may modify results. Before these products are used, the user should confirm their suitability.

We cannot accept liability for any loss, injury or damage which may result from its use. We do not warranty the accuracy or completeness of any such information whether orally or in writing. We reserve the right at anytime and without notice to update or improve products and processes and our information concerning the same.

Mechanical Plating